Amendments to the Claims

The following listing of claims replaces all prior listings and versions of claims in this application.

1. (Currently amended) [[A]] An isolated cell population ~~comprising~~ enriched for insulin-producing cells derived from human embryonic stem ~~cells~~ cell line.

2. (Cancelled)

3. (Currently amended) The isolated cell population of claim 1 [[2]] wherein the enrichment comprises treatment of the human embryonic stem ~~cells~~ cell line with insulin, transferrin and selenite.

4. (Currently amended) The isolated cell population of claim 1 comprising selected insulin-producing cells derived from human embryonic stem ~~cells~~ cell line.

5. (Currently amended) The isolated cell population of claim 1 comprising isolated insulin-producing cells derived from human embryonic stem ~~cells~~ cell line.

6. (Currently amended) The isolated cell population of claim 1 comprising cloned insulin-producing cells derived from human embryonic stem ~~cells~~ cell line.

7. (Currently amended) [[A]] An isolated cell population ~~comprising~~ enriched for regulatable insulin-producing cells derived from human embryonic stem ~~cells~~ cell line.

8. (Currently amended) The isolated cell population of claim 7 comprising glucose-responsive insulin-producing cells derived from human embryonic stem ~~cells~~ cell line.

9. (Currently amended) The isolated cell population of claim 8 enriched for glucose-responsive insulin-producing cells derived from human embryonic stem ~~cells~~ cell line.

10. (Currently amended) The isolated cell population of claim 9 wherein the enrichment comprises treatment with insulin, transferrin and selenite.

11. (Currently amended) The isolated cell population of claim 8 comprising selected glucose-responsive insulin-producing cells derived from human embryonic stem ~~cells~~ cell line.

12. (Currently amended) The isolated cell population of claim 8 comprising isolated glucose responsive insulin-producing cells derived from human embryonic stem ~~cells~~ cell line.

13. (Currently amended) The isolated cell population of claim 8 comprising cloned glucose-responsive insulin-producing cells derived from human embryonic stem ~~cells~~ cell line.

14. (Original) The glucose responsive insulin-producing cells of claim 8 wherein said cells express at least one gene from the group of: insulin, islet glucokinase, Glut-2 glucose transporter, Glut-1 glucose transporter, insulin promoter factor1/pancreatic and duodenal homeobox gene 1 IFP1/PDX1 transcription factor, and Ngn3 transcription factor.

15. (Currently amended) [[A]] An isolated cell population comprising stable insulin-producing cells derived from human embryonic stem ~~cells~~ cell line.

16. (Currently amended) The isolated cell population of claim 15 comprising stable clonal insulin-producing cells derived from human embryonic stem ~~cells~~ cell line.

17. (Currently amended) The isolated cell population of claim 15 comprising insulin-producing cells derived from human embryonic stem ~~cells~~ cell line overexpressing hTERT.

18. (Currently amended) The isolated cell population of claim 15 comprising insulin-producing cells derived from human embryonic stem cells stably transfected with a construct comprising an insulin promoter.

19. (Currently amended) The isolated cell population of claim 18 comprising cloned insulin-producing cells derived from human embryonic stem cells stably transfected with an insulin promoter.

20-25. (Cancelled)

26. (Withdrawn) A method for in vitro enrichment of the insulin-producing cells of claim 1, comprising the steps of: (i) culturing undifferentiated pluripotent stem cells in a chemically defined serum-free culture medium complemented with supplements selected from: serum replacement; nonessential amino acids; mercaptoethanol; glutamine; or fibroblast growth factor, and (ii) disaggregating and transferring the adherent cell cultures from (i) to suspension culture in bacterial-grade petri dish; and (iii) adding to the culture medium of the cells from (ii) supplements selected from the group consisting of: insulin; transferrin and sodium selenite (ITS); glucose; nicotinamide; keratinocyte growth factor; fibroblast growth factor; vascular endothelial growth factor; epidermal growth factor; nerve growth factor; activin; and β-cellulin.

27. (Withdrawn) The method in claim 26 comprising the following steps: (i) culturing undifferentiated pluripotent stem cells on a feeder layer in a chemically defined serum-free culture medium complemented with supplements selected from: serum replacement; nonessential amino acids; mercaptoethanol; glutamine; or filroblast growth factor; and (ii) disaggregating and transferring the adherent cell cultures from (i) to suspension culture in bacterial-grade petri dish; and (iii) culturing the cells in (ii) for 4-5 in a culture medium as in (i) in the absence of fibroblast growth factor; and (iv) disaggregating and transferring the embryoid bodies formed in (iii) to fibronectin coated tissue culture dishes in serum-free medium; (v) adding to the culture medium of (iv) supplements selected from the group consisting of: fibronectin; transferrin and sodium selenite (ITS); and (vi) adding to the culture medium of (v) supplements selected from the group consisting of: B27 supplement (GIBCO); N2 supplement (GIBCO); laminin: and fibroblast growth factor; and (vii) replacing the culture medium in (vi) with culture medium comprising supplements selected from the group consisting of: B27 supplement (GIBCO); N2 supplement (GIBCO); laminin; and nicotinamide.

28-33. (Cancelled)

34. (Previously presented) The glucose responsive insulin-producing cells of claim 8 wherein said cells express the insulin gene.